REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 2, 6, 8, 22, 26, 28 and 41-44 are pending in the present application. Claims 9 and 29 have been cancelled and Claims 2, 6, 8, 22, 26 and 28 have been amended by the present amendment.

In the outstanding Office Action, Claims 8, 9, 28 and 29 were objected to; and Claims 2, 6, 8, 9, 22, 26, 28, 29 and 41-44 were rejected under 35 U.S.C. § 103(a) as unpatentable over Nakajima et al in view of Iwasa et al.

Regarding the objection to Claims 8, 9, 28 and 29, Claims 8 and 28 have been amended to depend on the appropriate claim, and Claims 9 and 29 have been cancelled. Accordingly, it is respectfully requested the objection to these claims be withdrawn.

Claims 2, 6, 8, 9, 22, 26, 28, 29 and 41-44 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Nakajima et al in view of Iwasa et al. This rejection is respectfully traversed.

Amended Claim 2 is directed to an information recording multibeam light source including a semiconductor laser array having a plurality of light emitting points in a single package. The plurality of light emitting points is formed to be positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate. Also included is a means for collimating the laser beams emitted by said semiconductor laser array, and adjusting means for adjusting a position of the semiconductor laser array so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is defined by first and second straight lines on the recording substrate. The first straight line is drawn perpendicular to a primary scanning direction and the second straight line is drawn through respective centers of a first and an n-th laser beam

spot formed by projecting laser beams emitted respectively from the plurality of light emitting points. In addition, the adjusting means is capable of rotating around an optical axis of the means for collimating. Independent Claims 6, 22 and 26 include similar features.

Because the center of the rotation is situated at the midpoint between the points $1a_2$ and $1a_3$ (see Figure 6, for example), this gives rise to a deviation δ_2 considerably reduced from its ideal position as illustrated in Figure 6. In addition, because the midpoint between the emitting points $1a_2$ and $1a_3$ (or the center of rotation) is situated closer to the optical axis of the collimator lens 5 (see Figure 2), excellent quality in recorded images may be achieved (see page 16, lines 2-7).

On the contrary, in Nakajima et al, a collimating lens 5 is disposed in each laser array (see Figure 15, for example), and rotation is performed while the center thereof is the midpoint between the plurality of laser arrays (i.e., the midpoint between the plurality of collimator lenses). A drawback to Nakajima et al is that the number of parts increases, thus resulting in an increase of costs for the device, because one collimator lens needs to be disposed in each laser array.

However, according to the present invention, the collimator lens can be commonly used. To prevent occurrence of problems due to this construction, the laser arrays are capable of being rotated around the optical axis of the collimator lens. Thereby, as described at page 16, line 7 of the specification "excellent quality in recorded images may be achieved." Iwasa et al also do not teach or suggest the claimed features.

Accordingly, it is respectfully submitted independent Claims 2, 6, 22 and 26 and each of the claims depending therefrom are allowable.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier
Attorney of Record
Registration No. 25,599
David A. Bilodeau
Registration No. 42,325

22850

Tel.: (703) 413-3000
Fax: (703) 413-2220
GJM/DAB/cja
I:\atty\DAB\199892US-am.doc

Marked-Up Copy
Serial No: 09/725,756
Amendment Filed on: 04/18/03

IN THE CLAIMS

--2. (Three Times Amended) An information recording multibeam light source comprising:

a semiconductor laser array including a plurality of light emitting points in a single package, said plurality of light emitting points being formed to be positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; [and]

means for collimating said laser beams emitted by said semiconductor laser array; and

adjusting means for adjusting a position of said semiconductor laser array so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is defined by first and second straight lines on the recording substrate, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spot formed by projecting laser beams emitted respectively from said plurality of light emitting points,

wherein said adjusting means is capable of rotating [said semiconductor laser array around at least a vicinity of a midpoint of a straight line drawn by connecting the centers of said first and n-th light emitting points] around an optical axis of said means for collimating.

6. (Three Times Amended) An information recording multibeam light source comprising:

a plurality of semiconductor laser arrays each including a plurality of light emitting points in a single package, said plurality of light emitting points being formed to be

positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; [and]

means for collimating said laser beams emitted by said plurality of semiconductor arrays; and

adjusting means for adjusting each of said semiconductor laser arrays individually to a position so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is defined by first and second straight lines on the recording substrate for each of said semiconductor laser arrays, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spot formed by projecting laser beams emitted respectively from said plurality of light emitting points,

wherein said adjusting means is capable of rotating [each one of said plurality of semiconductor laser arrays around at least a vicinity of a midpoint of a straight line drawn by connecting the centers of said first and n-th light emitting points] around an optical axis of said means for collimating.

8. (Amended) The information recording multibeam light source according to claim [5] 6, wherein:

said plurality of semiconductor laser arrays comprises a first laser array defining an optical axis of laser beams aligned to be approximately parallel to and tilted by a relatively minute angle from that of other laser arrays, so that a position of said laser beam spots on the recording substrate formed by said first laser array is adjusted to be displaced from that of beam spots from said other laser arrays by a predetermined distance along the primary scanning direction.

9. (Cancelled).

22. (Three Times Amended) An information recording multibeam light source comprising:

a semiconductor laser array including a plurality of light emitting points in a single package, said plurality of light emitting points being formed to be positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; [and]

a collimator lens configured to collimate said laser beams emitted by said semiconductor laser array; and

a position adjustor configured to adjust a position of said semiconductor laser array so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$,where angle θ is defined by first and second straight lines on the recording substrate, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spot formed by projecting laser beams emitted respectively from said plurality of light emitting points,

wherein said position adjustor is configured to rotate [said semiconductor laser array around at least a vicinity of a midpoint of a straight line drawn by connecting the centers of said first and n-th light emitting points] around an optical axis of said collimator lens.

26. (Three Times Amended) An information recording multibeam light source comprising:

a plurality of semiconductor laser arrays each including a plurality of light emitting points in a single package, said plurality of light emitting points positioned in linear relationship to one another and having an equidistant pitch so as to respectively emit laser beams simultaneously scanned over a recording substrate; [and]

a collimator lens configured to collimate said laser beams emitted by said plurality of semiconductor laser arrays; and

a position adjustor configured to adjust each of said semiconductor laser arrays individually to a position so as to satisfy the relation $\theta \leq \tan^{-1}\{1/(n-1)\}$, where angle θ is

defined by first and second straight lines on an image recording substrate for each of said semiconductor laser arrays, said first straight line drawn perpendicular to a primary scanning direction and said second straight line drawn through respective centers of a first and an n-th laser beam spot formed by projecting laser beams emitted respectively from said plurality of light emitting points,

wherein said position adjustor is configured to rotate [each one of said plurality of semiconductor laser arrays around at least a vicinity of a midpoint of a straight line drawn by connecting the centers of said first and n-th light emitting points] around an optical axis of said collimator lens.

28. (Amended) The information recording multibeam light source according to claim [25] 26, wherein:

an optical axis of laser beams from a first laser array is aligned to be approximately parallel to and tilted by a relatively minute angle from that of other laser arrays, so that a position of said laser beam spots on the recording substrate formed by said first laser array is adjusted to be displaced from that of beam spots from said other laser arrays by a predetermined distance along the primary scanning direction.

29. (Cancelled).--